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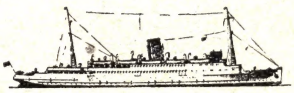

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Model Ships and Power Boats

INCORPORATING *Ships and Ship Models*

EDITED BY EDWARD BOWNESS

VOL IV NO 42 JUNE 1951

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The Ship's Log

OUR COVER PICTURE

This month we have used a photograph taken at the "A" class open championship races held at Gosport in July of last year. The boat nearest the camera is *Phoebe* entered by F. Douglas of Barrow-in-Furness, and the other is *Esther* entered by W. J. Daniels and T. Lance. When our photograph was taken they were sailing neck and neck, close-hauled to windward, in one of the heats on the day before the finals. As our model yachting readers will remember *Esther* won the championship, thus adding one more to Mr. Daniels's long list of successes. Both boats are fitted with vane steering gear, as indeed were most if not all of the boats entered. *Esther* had a combination of both Braine and vane steering gears, Mr. Daniels maintaining that the Braine gear can contribute something to the vane gear which is not possessed by the vane gear when used alone. This is the gear described by Mr. Daniels in his article on another page of this issue. The vane gear has produced some wonderful results in the control of model yachts, but it is still in its comparatively early stages, and is probably capable of considerable development. We have in preparation other articles describing variations of the two better-known types, viz : the Fisher, and the Lassell, and shall be interested to have our readers' comments on this very important question.

THE SEAFARERS' EDUCATION SERVICE

This society is holding an exhibition of ship models, paintings, handicrafts, photographs and books on board H.Q.S. *Wellington* from May 25th to June 8th inclusive. The exhibits have been made by Merchant Navy seafarers in their leisure time on board ship. Visitors will also have the opportunity of seeing H.Q.S. *Wellington*, the headquarters of the Honourable Company of Master Mariners and the only floating livery hall in the world. The ship herself is well worth a visit and its own collection of ship models is worth going a long way to see. She is moored at Temple Stairs, a few minutes walk from Temple District Railway Station. Admission to the Exhibition is free, catalogues 1s. Open Monday to Friday 10 a.m. to 6 p.m., Saturday 10 a.m. to 1 p.m.

HOBBIES AT SEA

Many seamen, both on the navigating and engineering sides, have hobbies. It will be a new feature of three 16,300 ton diesel-engined tankers which are being built at Linholmens Varv, Gothenburg, for J. Lauritzen Lines, Copenhagen, that special arrangements are made to encourage this activity by the provision of a workshop exclusively for any of the members of the crew to engage upon their hobbies, such as woodworking and the making of ship models. (For the above information we are indebted to our contemporary *The Motor Ship*.)

We were particularly interested to see this item of news. Seafarers under modern conditions at sea have a reasonable amount of spare time on their hands and, unlike their fellows ashore, they have little in the way of entertainment provided for them —no cinemas, no pubs, and no outdoor games : thus, for a healthy and active-minded man he is thrown back on himself to provide his own amusements. Even up to twenty years ago or less, the ordinary seaman or stoker had no facilities provided for his recreation although, admittedly, he had less time on his hands then, than he has now. He often pursued various handicrafts and made ship models under those conditions, so we may expect a great development on these lines now that facilities are being provided. We trust that British shipowners will follow the lead of the Scandinavians and that British seafarers will soon be enjoying these new privileges. We have a number of seafarers amongs our readers and we may then see the results in more of their models in our annual "M.E." Exhibition and more articles from them in our pages.

*MODEL POWER BOAT TOPICS

By Edgar T. Westbury

ONE of the oldest-established annual events of the model power boat world is the M.P.B.A. International Regatta, which was originally the main regatta of the year, and its principal feature was a race for petrol-driven speed boats of the "International" class, as they were termed at the time; namely, boats having an all-on weight within a limit of 16 lb., and engines within a capacity limit of 30 cubic centimetres. Another event was the "Speed Championship," open to either steam or petrol-driven racing boats, while the rest of the programme was devoted to prototype competitions.

With the rapid evolution of speed craft, and their increasing popularity, which led to the introduction of additional new classes for engines of smaller sizes, the time taken in the running of racing events made it necessary to devote the entire programme to them, and an additional regatta later in the year, and known as the "Grand" regatta, was instituted for mixed events. This arrangement has been maintained, with the exception of the years when activities were inevitably suspended during the war, and both regattas have been well supported, especially the latter, which is always held on the Sunday following the closing date of the "M.E." Exhibition, when many provincial and overseas enthusiasts are in London, and find this regatta a very fitting climax to an interesting week-end.

Within the last few years, however, the significance of the term "International" in connection with model speed boats has undergone a change, as the most popular class of boats in nearly all countries is now the 10 c.c., or, as it is termed, the "C" class. Last year, in view of the fact that a special International trophy for boats of this class, awarded by the Hispano-Suiza Co., had to be competed for in this country, an additional regatta was held at Derby, and this was made a two-day event, as yet another trophy, awarded by the Ford Motor Co., was put up for a race open to all classes of boats.

I cannot speak from first-hand knowledge of this regatta, owing to the fact that it occurred at a time when the whole of my attention had to be devoted to the "M.E." Exhibition, and therefore I was unable to attend. This, however, is a digression; what I was leading up to was to point out that the model power boat season is becoming so crowded with local, national and international events that it is difficult to fit them into the available number of week-ends.

A scene at last year's M.P.B.A. Grand Regatta

*Continued from May issue, page 44

This year, for the first time, the original International regatta is being expanded into a two-day event, to be held on Saturday and Sunday, June 16th and 17th, as a fitting means of celebrating Festival of Britain year. It may be remarked that the M.P.B.A. had originally planned to work in a more intimate association with the central organisation of the Festival, and had negotiated for some months on the possibility of staging demonstrations on the pond at the base of the Shot Tower on the South Bank site. Unfortunately, however, the restricted size of the pond, and other more formidable practical difficulties, caused this scheme to be abandoned. The events mentioned above will be held at Victoria Park, and though their direct association with the Festival is less obvious, the greater convenience of this venue will enable a much more representative demonstration to be staged. On the Saturday, the programme, which starts at 2 p.m., will consist of prototype (nomination, steering, and " novelty ") events ; Sunday's programme will start at 11 a.m., and will be devoted to racing, in " A," " B," " C," " C " (Restricted), and possibly " D " classes. All readers who may be visiting London during this week-end should make a point of attending one or other of these regattas, which are by no means the least interesting of the many shows connected with the Festival, and involve no expenses, beyond bus fares.

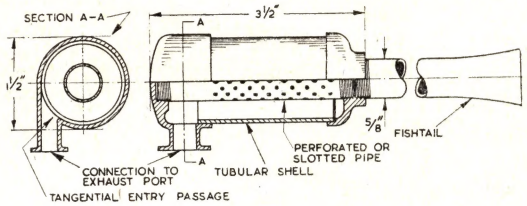
FURTHER NOTES ON SILENCERS

In case it may be considered necessary to make an apology for " prolonging the agony " on this subject, it may be remarked that not only have several readers asked for more specific information on it, but it has also been deemed of sufficient urgency to merit being placed on the agenda of the last two committee meetings of the M.P.B.A. I am betraying no inner secrets by disclosing that the problem is becoming increasingly serious, and attempts are now being made to find a basis for some standard specification of silencer which can be recommended to constructors of boats.

As I have repeatedly pointed out, the widely varying characteristics of engines make it almost impossible to standardise a single type, capacity, or design of silencer which would be universally applicable to all engines, or even one type for four-strokes and another for two-strokes. But it has been possible, by pooling such information as is available, to arrive at some tentative suggestions, which I understand are being issued to all clubs affiliated to the M.P.B.A.

It is universally accepted that four-stroke engines are inherently less noisy than two-strokes, owing to the less abrupt release of the exhaust gases, despite their higher working pressures, and that they will tolerate slight back pressure or baffling of the gases with less effect on their efficiency than the latter. The Burgess type of silencer, which was described in last month's issue, appears to be reasonably effective on four-stroke engines, and may be used, without the addition of an extra expansion chamber.

With the two-stroke engine, on the other hand, expansion of the gases, at a point as close as possible to the cylinder escape port, seems to be the most essential factor in the suppression of noise without causing undue reduction in efficiency. But the use of an expansion chamber alone, without some further means of preventing direct impact of the gases on the air as they emerge from the exhaust pipe, is not



Part sectional plan, and cross section, of a silencer for 10 *c.c. engines, conforming to M.P.B.A. recommendations.*

sufficient. Some engines have expansion chambers, more or less adequate in volume, but with so large an outlet or exhaust pipe that they produce little silencing effect.

It is, therefore, recommended that in all types of two-stroke engines, an expansion chamber having a volume of *not less* than three times that of the cylinder capacity should be used, and that no direct escape of the gases from the chamber should be allowed, but an indirect passage be provided to an outlet pipe, having a bore at the discharge end not greater in area than that of the cylinder exhaust port or ports to which they connect. Baffles, or diffusing devices of any kind, inside the expansion chamber are favoured, but as it is recognised that they may be liable to set up back pressure, are not put forward as paramount essentials.

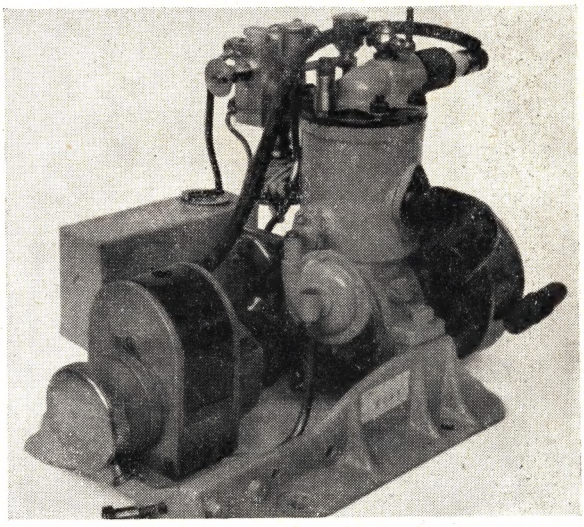
I should like to make it clear that the above specification is that proposed by the committee of the M.P.B.A., but I have no hesitation in saying that it coincides with my own views in all essential respects.

A TYPICAL SILENCER

An example of a silencer which conforms with this specification is shown in the drawing herewith, the size being suitable for a 10 c.c. engine, though it may be scaled up to suit larger engines. It will be seen that the casing of the expansion chamber is cylindrical, arranged horizontally, and as close to the cylinder as possible. It is connected to the exhaust port from the engine by a large passage running tangentially into the expansion chamber, and the outlet from the latter is by way of a central horizontal pipe having a bore equal in area to the exhaust port or ports. This pipe should extend internally for the complete length, or a major part of the length, of the chamber, and is perforated or slotted to produce a multiplicity of small apertures, which should have a combined area large enough to avoid any appreciable back pressure, though not larger than is really

necessary. At the outlet end, the pipe may with advantage be flattened and broadened sideways to form a conventional "fishtail," which makes it possible to control the size of the actual outlet orifice, at a point where it will have the least effect in producing back pressure. A silencer arranged in this way may be very lightly constructed and is not very liable to act as a resonator. The tangential connection must, however, be very strongly attached to the casing, and a very sound method of construction is to machine this end of the body from a casting or a solid piece of light alloy. The central tube may then be utilised as a structural member, to hold together the above end piece, a light tubular shell, and a plain annular end piece which may be machined, or produced by spinning from sheet metal.

The reason for admitting the gases to the casing at a tangent is that it produces a circular swirl, which, by reason of centrifugal force, lowers the pressure at the centre of the chamber, the principle being the same as when air or fluids are churned up mechanically in a centrifugal pump or a cream separator; a natural phenomenon which embodies the same principle is the vortex of a whirlpool. Therefore, the gases are always taken out of the expansion chamber at the point of lowest pressure, and the faster the engine runs, the more is the main impact of the gases expended on the outer wall of the casing, without increasing output pressure. I have used silencers working on this general principle in both large and small engines with great success.



The power unit of Mr. R. O. Porter's "Slickery," consisting of a 30 c.c. water-cooled two-stroke with magneto ignition and self-winding starter, fitted to a bedplate which enables it to be removed as a complete unit very quickly and easily

STRAIGHT-RUNNING BOATS

I have had a letter from Mr. E. W. Vanner, commenting on my notes on this subject in the April issue of MODEL SHIPS & POWER BOATS. He agrees with the opinions I expressed on the design of hulls, including the features which assist "automatic" straight steering, and adds the further information that the hulls of both Mr. Porter's *Slickery* and Mr. Hood's *Truant* are of his design.

The former hull was made by him some 24 years ago, and it may be of interest to note that it was, and still is, fitted with a Stuart Turner 30 c.c. water-cooled two-stroke of a very early type which has given good service all through the years and as yet shows no signs of wearing out. A lightweight magneto, of a standard type once used on motor cycles, is employed for ignition, and a very simple self-winding ratchet starter using a chain and sprocket, is fitted.

In the case of *Truant*, this hull was built by Mr. Hood to a drawing of Mr. Vanner's steam-driven boat *All Alone*, which Mr. Hood had seen in action, and very much admired—a sentiment, by the way, which many others, including myself, have shared. Mr. Vanner has assisted many more model boat constructors than I care to attempt to estimate, and still gets innumerable enquiries from people who want to get boats built, some of them to very exacting specifications. The long and profusely detailed letters on this subject often make rather amusing reading, though some of the requests are just a little embarrassing.

It is rather a pity that Mr. Vanner, who is a much more efficient operator in manipulating metal with a few simple tools than describing how to do it on paper, has not been able to tell the world of his methods, but this particular technique is one which can be much better demonstrated than described, and the many demonstrations he has given at club meetings and exhibitions have often been the means of setting beginners on the right road to hull construction.

To be continued

*MINIATURE LINERS

By DONALD McNARRY

THE various capstans on both vessels were carved from the inevitable holly ; there are several sizes of capstans on the *Queen Elizabeth*, the smaller ones having the whelps painted on with white paint. The three large ones that work the anchor chains were made next, also the cable trackways and stoppers of Bristol board.

The anchors were also made of this material, three for the *Queen Elizabeth*, one stem, and two bower anchors ; the *Stirling Castle* has four anchors, two bower, one spare clamped to the port side of the fore deck, and one stream anchor clamped to the roof of the aftermost deck house.

My wife crocheted the anchor chains for me with very fine black enamelled copper wire and a specially filed crochet hook.

WINCHES

On the *Queen Elizabeth* there are six cargo winches, six gangway winches, twenty-six boat winches and one warping winch at the stern.

The *Stirling Castle* has one large combined windlass and warping winch that works the anchors, sixteen cargo winches and the same number of boat winches. All of these were made from pieces of round and square sectioned holly previously shaped up, Bristol board, paper, and short lengths of fuse wire for the spindles. The winch drums were shaped up and the ends hollowed out with a dentist's burr before they were parted off.

The large fly-wheels on both warping winches were slices taken from some beechwood dowels. The boat winches on both vessels were almost entirely enclosed which simplified their construction. These and the gangway winches were painted white ; all the rest were black with white drum ends.

There are a number of wire reels on the *Stirling Castle*. These were quite simple to construct from holly and Bristol board ; some of the fine copper wire used on the rigging was wound round each drum.

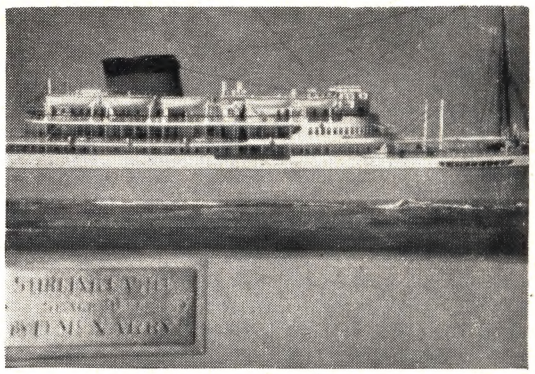
In place of the stern warping winch on the *Queen Elizabeth*, the *Stirling Castle* has two large capstans, port and starboard, mounted on the lower deck.

BRIDGE EQUIPMENT

Small brass nails were used for most of the binnacles, and for the direction and range-finders on the roofs of both wheel-houses. Not being much of a metal worker I had to shape them up with a file, the nail being held in a pin-vice.

Engine-room telegraphs were made in this way ; the stern docking bridges of both vessels are also equipped with these. The *Stirling Castle's* docking-bridge has also a steering-wheel. Not without some trouble I managed to make an eight-spoked wheel out of some fine wire, the rim being about 3/100 in. in diameter.

I was fortunate in obtaining from Cossor Radar Ltd. a photograph of the radar gear on the *Queen Elizabeth* ; this I made up from holly and wire.

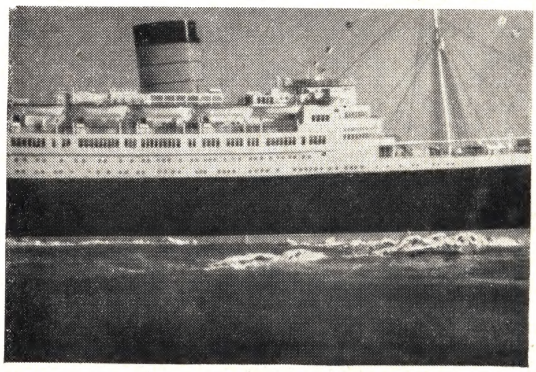


Bridge and funnel of " Stirling Castle " model

SKYLIGHTS

There are several skylights on both vessels. Those with the round bull's-eye light were carved from the solid, the lights being bored and treated the same way as portholes. The other type, with square hinged lights, were made from pieces of cellophane on a Bristol board frame and were quite hollow, and from eye level view it is possible to see right through them.

The engine-room skylights on the *Queen Elizabeth* are of a rather unusual type and were made from little



Bridge and forward funnel of " Queen Elizabeth " model

squares of white painted Bristol board with a porthole on the top of each. Two or three rows of these were propped up in an open position, the remainder being shown closed.

There are dozens of lockers dotted about the decks of both ships, some made of metal and painted white,

*Continued from May issue, page 47

and some of teak. All of those on the model were made from small pieces of holly.

On the *Stirling Castle* there are quite a few deck seats of the bench type ; these are of course extremely small on the model but were well worth making. They were made of paper, the two end pieces projecting slightly below the seats to form the legs ; they were all painted brown to represent teak.

MASTS AND DERRICKS

Both masts on each vessel were shaped out of holly which was split down roughly first to ensure that the grain of the wood was quite straight up the mast. On the *Stirling Castle* there are six samson posts with derricks, four ordinary derricks to the fore mast, one "Jumbo" derrick immediately abaft and stowed upright behind the foremast, and four derricks to the mainmast. All of these were made from wire of different thicknesses. The masts and "Jumbo" derrick were painted brown, all the rest white.

There are seven derricks on the *Queen Elizabeth*, three forward of the foremast and four abaft (two on each side) ; the masts and derricks on this model were all painted white as was the prototype when the model was made, but when I saw the *Queen Elizabeth* the other day I noticed they had been repainted brown.

The yardarms on the foremasts and the gaffs on the mainmasts of both vessels were made of copper wire with the ends filed to taper.

The crow's-nest on the *Queen Elizabeth* was carved from holly, as was also its roof. The forward part of the space between the two pieces was fitted with a small piece of cellophane and the after part with a small piece of cigarette-paper to represent the canvas screen. The crow's-nest on the *Stirling Castle* was made of Bristol board and paper, being quite hollow and not having a roof. Little Bristol board brackets were fitted beneath each crow's-nest ; the brackets for the mast lights were also fitted at this stage, the main brackets, of course, being higher than the forward ones.

Small brass bells (shaped up from brass nails) about 1/50 in. long were fitted immediately above each crow's-nest. The only other brass bell I could locate on the *Queen Elizabeth* is hung outside the centre of the forward windows of the wheel-house. There are several other bells on the *Stirling Castle*, one on the bridge, one on the lower part of the mainmast and one on a post on the after side of the deckhouse immediately abaft the break of the boat deck. Crutches for all the derricks were made up from wire and paper.

There are ladders 1/50 in. wide running up the inboard sides of all the samson posts on the *Stirling Castle*, also up the front of the foremast and the side of the mainmast. The making of these ladders will be described subsequently.

DAVITS

The davits on both vessels are of the gravity type and were all made of Bristol board, being painted white after fitting. A strip of Bristol board was cut out and two lines were scored along one surface. (See Fig. 11.)

Strips of about 1/50 in. wide were then cut off with a razor blade and bent at the scores to the correct shape. In fitting the davits it was essential to see that the lower ends coincided with the thicker deck stanchions on the *Stirling Castle* and with the spaces between the window groups on the *Queen Elizabeth* ; the upper ends that go into the deck-houses had to pair off port and starboard. The aftermost pair of

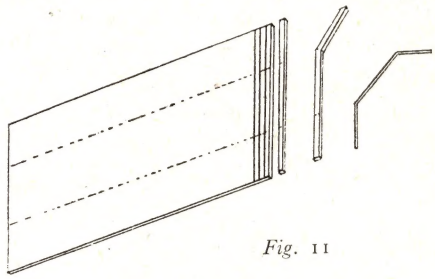


Fig. 11

davits on the *Queen Elizabeth* were set lower than the others, presumably so that the lifeboat is low enough to keep a clear view for the veranda grill windows.

The crosspieces between each set of davits were made of wire ; the sliding top arms were made of Bristol board, glued to the lower part and then curled over. Continual sighting from bow to stern is necessary during assembly.

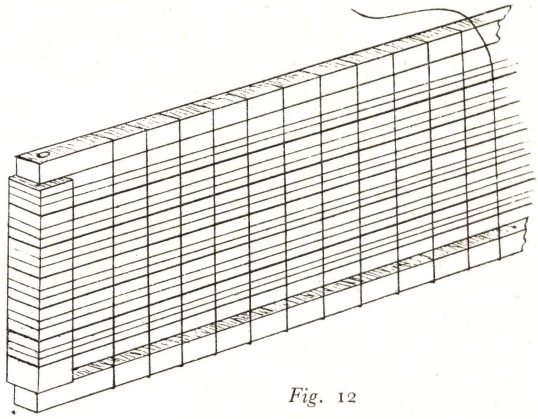
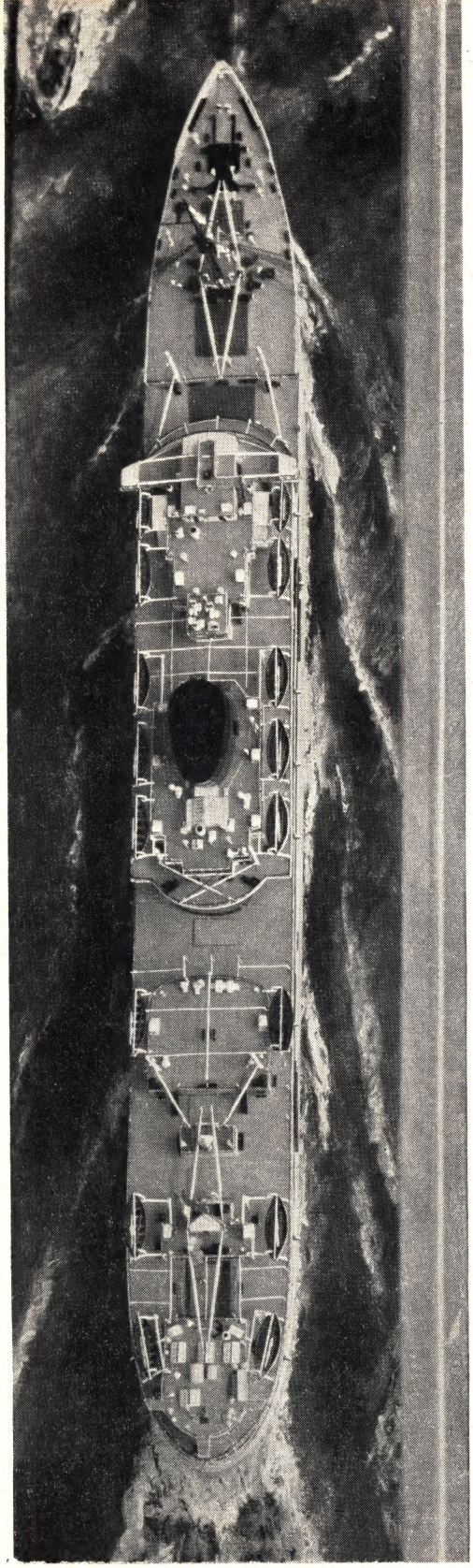


Fig. 12

RAILS

I described in a previous article in *The Model Engineer* the method used for making the deck-rails, etc., but for the benefit of readers who have not access to that copy, I propose to describe it again. Personally, I have a great admiration for those model makers who laboriously bore holes around the edges of their decks, insert pins and then solder lengths of wire to the pins. This may be all right for the skilled metal worker but I much prefer the easier method both in application and results.

A wooden frame, approximately 6 in. × 2 in., was first made, the two long sides being $\frac{1}{4}$ in. × $\frac{1}{4}$ in., and the two ends $\frac{3}{8}$ in. × $\frac{3}{8}$ in. ; these latter were marked and notched at intervals representing the



View of model of "Stirling Castle" from above : note modelling of the sea

top teak rail and the two lower white painted metal rods, the great idea being to get as many lengths of rail in the 2 in. depth of the frame as possible. The long sides of the frame being next marked and notched at intervals representing the distances between each upright stanchion. (See Fig. 12.)

Very fine fly-tying rayon was then attached to the frame and very tightly stretched over the length of it, forming the horizontal rails, white rayon for the rods and brown for the top teak rail. A slightly thicker white silk was next used to make the upright stanchions, being again wound over the frame, and, of course, over the existing horizontal rayon, making sure that both horizontal rails and vertical stanchions touched each other wherever they crossed. Two exactly corresponding sets of rails were now assembled one set each side of the frame.

Both sides were then given a coat of french polish with a fine brush, and when quite dry removed from the frame by cutting with a razor blade, the stanchions on both the long sides of the frames first, and then the horizontal rods at each end. Both sets were put in a book and pressed with a heavy weight for 24 hours. Strips of rail were then cut off, cutting level with the topmost rail and leaving a short length of stanchion below the lower rail. The rails were then fitted to the edges of the decks by putting a spot of glue on the foot of each upright stanchion.

When all the rails were fitted the awning stanchions on the *Stirling Castle* were made from uprights of wire and crosspieces of thin Bristol board.

As a refinement on the *Queen Elizabeth* I included dozens of lifebelts ; I had a pretty good idea where they went by studying the Press photographs with a strong magnifying glass. Fortunately, I had some internal telephone wire covered with a white plastic insulation of the right size ; I was able to extract the wire from this and cut the resulting plastic tube into thin slices. These little circles of white were glued to the rails, and with a touch of red paint on two sides of the lifebelt, looked quite convincing.

LADDERS

All the stairs between decks and the Jacob's ladders on both models were made on one frame at one winding, the Jacob's ladders being just over 1/50 in. wide and the deck-stairs about 1/20 in. These ladders were not made in the sequence shown here, but at quite an early stage as they had to be fitted in the lower decks of the *Stirling Castle* as she was built up.

All the deck-ladders on both ships are sheeted with wooden board at the back ; on the models I just mounted each ladder on a piece of brown-painted paper. The handrails or banisters for the deck-ladders presented quite a problem and on the *Stirling Castle* I assembled them from separate pieces of wire, painted the uprights and lower rails white and the upper rail brown to represent teak. The result not being to my liking, as the uprights tended to get out of alignment, and the method itself being very difficult, I adopted different tactics in the *Queen Elizabeth.*

To be continued

Ship Models at the *SOUTH BANK EXHIBITION*

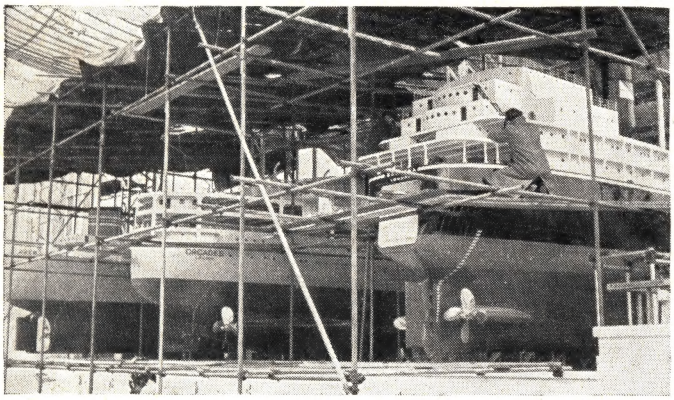
BY the time these notes appear in print most of our metropolitan readers will have visited the South Bank Exhibition of the Festival of Britain, and will have seen for themselves the many things of interest to shiplovers and shipmodellers which are to be found there. However, a few comments on the Exhibition will not be out of place and may help those who have yet to see it to make the most of their visit.

On entering the " Sea and Ships " Pavilion after leaving the Dome of Discovery one sees first the full-sized reproduction of the bow of a clipper ship. The ship is modelled from just aft of the catheads to the tip of the jibboom, which reaches out overhead in a very impressive manner. The graceful lines of the bow and the scroll work leading to the figurehead are beautiful from any point of view. The rigging is shown as far as possible and will interest the modeller. A number of historical models are to be found in the case nearby—a frigate of about 1730, an East Indiaman, the clipper *Torrens* on which Joseph Conrad served as 2nd mate, a schooner, and the famous Atlantic liner *City of Rome*. The latter shows the fine slender lines of the liner in the early days of steam. The model of *Torrens* is worthy of close study. It was made by the builders of the ship herself and is one of the best proportioned and most detailed models we have seen. It was loaned by the Honourable Company of Master Mariners and its real home is in their headquarters ship *Wellington*. In this same room two or three figureheads from the well-known collection of Captain L. J. Silver may be seen.

Passing along to the next room we see a Doxford marine oil engine and a model of a triple expansion compound engine of 2,200 h.p. with its tail shaft and propeller installed in the stern of a ship. On a platform nearby which overlooks the river may be seen the Metro-Vick marine gas turbine engine from M.G.B. 2009 which was the first vessel to be propelled by a gas turbine.

The art of ship building is well illustrated in the next section. A portion of a moulding loft is shown with the ship's lines scribed full size on the floor. Wooden templates are lying about, having been built up to the shape of the lines of the ship. Next we see part of a dogging slab on which the red-hot frames are bent to the shape of the templates. The central feature of this section is the actual bow of a 4,000 ton ship. It is interesting to see how the stern and keel is formed of bent plates and how the frames are joggled to take the inner and outer strakes of the plating, and also how the inner strakes are filled up flush with the outer ones at the bow to fair in smoothly with the stern. A full-sized ship's funnel, with a deflector top and all the internal fittings, is also to be seen. This and the ship's stern were from Thornycrofts of Southampton. Actual ship's fittings, such as anchors, winches, bollards, etc. are exhibited on the adjoining terrace. A steering wheel, with hydro-electric gear which operates a rudder on the floor beneath, which may be seen moving as one operates the wheel, is mounted on a representation of a ship's bridge. An engine room telegraph is situated nearby. A model showing the construction and operation of the Denny-Brown stabiliser is to be seen, together with a model of the new liner *Chusan* on which they were fitted. With this gear the rolling of the ship can be reduced from 20 deg. to 6 deg.

The modern trend in ship design is well illustrated in three models of recent ships—a 28,000 ton tanker, a liner, and a Thames up-river collier, the latter being a large vessel with low superstructure, and masts and funnel made to lower to clear the Thames bridges. John Brown & Co. Ltd. of Clydebank have lent a 16-foot model of R.M.S. *Queen Elizabeth*,



Models of sterns of three modern ships. These were made by Bassett-Lowke of Northampton The man at work gives one an idea of the scale

The Shipmodeller's Scrapbook

STEERING WHEELS FOR SAILING SHIPS

FROM our contributor Richard M. Cookson, who is well known to shipmodellers for his photographs of square riggers, we have received a number of photographs of the various details to be found on a sailing ship. These will, we trust, help to satisfy the demand from many of our readers for an extension of our "Shipmodeller's Scrapbook," which if authentic and accurate can be such a mine of information, and of the utmost value to the shipmodeller aiming at accuracy in his work. We propose to publish a selection of these photographs from time to time, grouping them so that each set will illustrate a particular feature or detail.

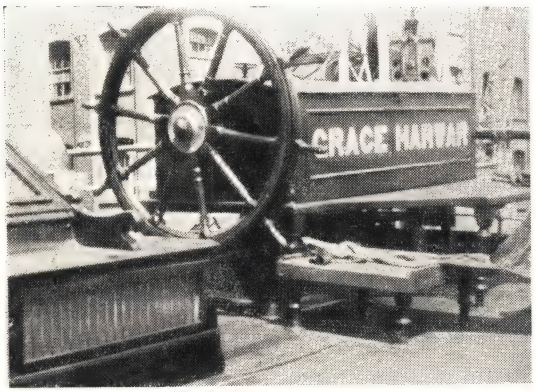
While drawings of these details can be made so as to emphasise the special features of each, a photograph is often more reliable. In the first place it proves that the detail was actually in use on a ship, and in addition it shows the detail exactly as it appeared at the time.

This month our selection shows the steering wheel in its various forms. The photograph of the *Grace Harwar's* wheel shows the typical wheel of the full-rigged ship and in fact of practically every ship until the larger 4-mast ships and barques came into being. The ten spokes indicate a wheel of about 5 ft. diameter. In this case the spokes were fluted which was a rather more expensive type than the turned spokes commonly used.

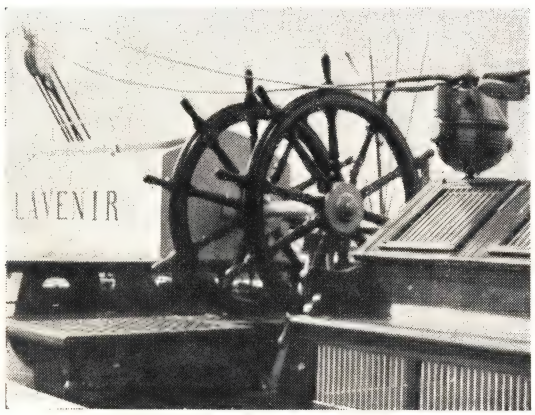
The casing aft of the wheel houses the right- and left-handed screw with its nuts connected by links to the short arms on the head of the rudder stock. This gear was introduced in the latter half of the last century. Before this the gear consisted of a wooden drum around which the steering lines were coiled, blocks being fixed to the bulwarks on each

*Continued from January issue, page 215

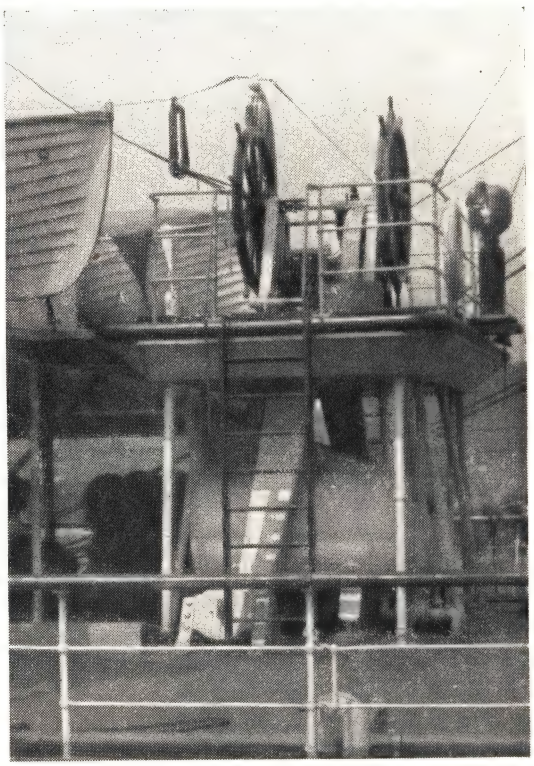
Continued on page 76



Typical steering wheel and casing



Double wheels (aft) for a large sailing vessel



Wheels and gear on vessel having a bridge deck or combined bridge and poop

*P.S. *GLENSANNOX*

A $\frac{1}{4}$-in. Scale Working Model

By A. S. Miller

AT each of the openings on to the sponsons from the main deck, glazed sliding doors were fixed, but, if preferred, they may be omitted, although their addition is not difficult. In the model, it is more convenient to arrange them outside the saloon sides, instead of inside, as on the prototype.

The single deckhouse between the paddle-boxes (See Fig. 18) carries the bridge with the purser's ticket office and captain's room below, and is a straightforward piece of wood panelling and glazing. The sides are from cedar or cigar box wood, 4 in. × 2 in. with the ends 2 in. × $2\frac{1}{4}$ in. For the top one piece $4\frac{1}{4}$ in. × $2\frac{3}{8}$ in. × $\frac{1}{16}$ in. thick is required. The bridge itself, $7\frac{1}{2}$ in. long by just under 1 in. wide, is fixed across $\frac{13}{16}$ in. from the centre to the forward edge. Where it crosses the top of the house, a groove should be cut in both, so that it is practically flush with the top. Six windows and two doors are disposed around the sides, as shown on the drawing with two ticket windows with shelves at the after end of the house. Needless to say, both sides and ends are cut with the grain running vertically. As the distance from the top edge to the window opening is only $\frac{1}{4}$ in. more, careful cutting is called for. These openings should be cut out by drilling and fretsawing, and then trimmed off with the penknife. In order to prevent warping of the sides, a stiffener should be fixed along both top and bottom edges inside. The panelling is cut from $\frac{1}{16}$ in. wide × 1/32 in. thick strips, carefully durofixed and pinned on. The heads of the pins should be filed off. All the windows are cut from thin ground glass plate $\frac{1}{16}$ in., or less, thick, and the company's crest, as on the paddle-box, drawn on the inside in very fine pencil. The ground side is fitted on the inside. In the model both doors are made to open and they need not be too fragile for this, though to carry the two hinges on each, they are over scale in thickness. If we assume a door to be $1\frac{1}{2}$ in. thick, scale thickness would only be 1/32 in., and in the model the doors cannot easily be less than $\frac{1}{8}$ in. to take hinges. In any case, these doors would normally be closed. The bridge itself carries at each end one engine-room telegraph and one mooring telegraph (see Fig. 19). On the top of the house the steering wheel, $\frac{11}{16}$ in. diameter, with its turned brass column, binnacle and compass (see Fig. 19) and two standby telegraphs are fixed. At the aft end of the top, six small fire buckets are carried, and at the forward end, the ship's bell is suspended from a small bracket. All the stanchions

*Continued from May issue, page 57

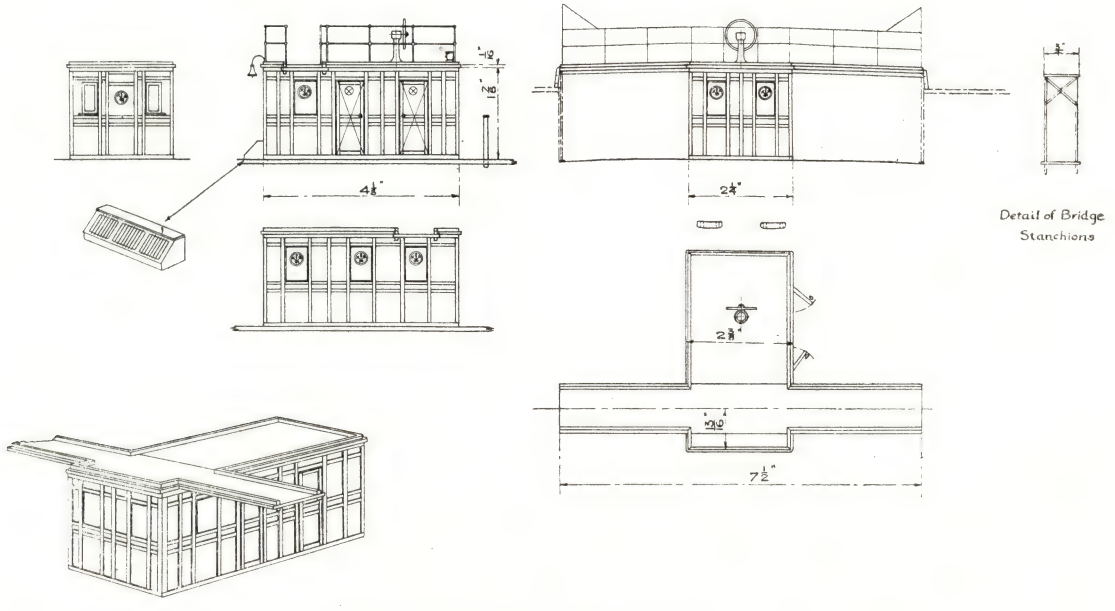
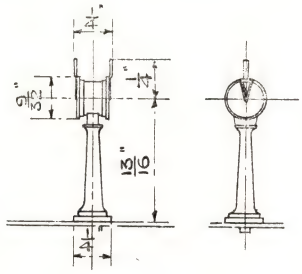


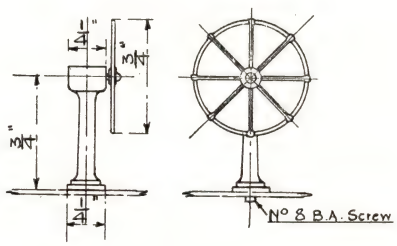
Fig. 18. Details of bridge and deck house

around the bridge and top of the house are of the 2 ball type. At the end of the bridge extra long standards for the wind dodger are fixed, and to complete the detail, this dodger should be cut out of a length of tape, about $\frac{3}{4}$ in. wide and stitched in place. On deck, hard up against the front of the house, a small glazed and barred skylight is fixed and at the after end, a barrier is fitted opposite each of the two



ENGINE TELEGRAPH
3 OFF
Fig. 19

deep at both ends. They should be cut from a block of mahogany or yellow pine. It was (and still is) usual to leave one of these boats uncovered, and, in this case, the usual thwarts and foot boards should be fitted. It will cut out this work, however, if both boats are covered by canvas covers, made from fine linen. There are 6 life lines around the gunwale of each, secured just below the topmost



STEERING COLUMN
1 OFF
Fig. 20

ticket windows. Details of these are given on the drawing (Fig. 18), and the house itself, is secured to the deck by small brass screws from underneath.

As previously mentioned, the funnels of the prototype were of the old slender tall pattern, and, to scale are only $1\frac{9}{16}$ in. diameter. This has, however, been increased to $1\frac{5}{8}$ in., so that light gauge aluminium or brass tube may be used. On the other hand, they can be made out of 22 or 23-gauge sheet, joined down the back and butt riveted. Around the top and at a distance of $1\frac{1}{2}$ in. from the top, two narrow bands are fixed, the lower one looped to take the exhaust steam pipes. Four securing eyes, formed from brass pins, are also fitted to this lower band to take the funnel guys. The forward funnel carries the siren, made up mainly from 14-gauge brass wire with a rope from the valve to each end of the bridge. (See Fig. 21.)

The funnels are secured to a light aluminium plate by a $\frac{1}{8}$ in. brass angle ring and this plate pinned to the deck. The plate should be scribed to represent chequer plating with a plain border all round, and around each funnel is arranged a ring of two ball stanchions with rails.

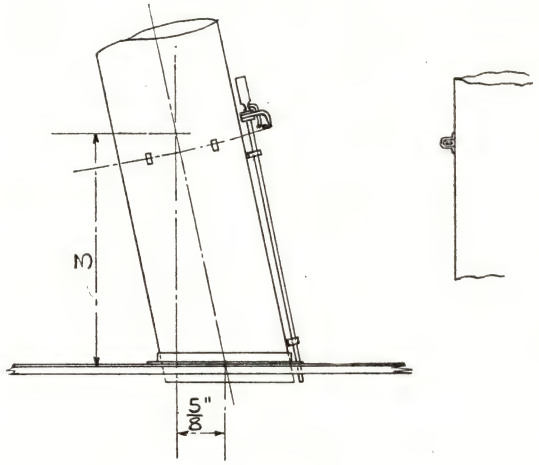
The mast, the length of which above deck is $14\frac{5}{8}$ in., is a simple job, being made out of $\frac{1}{4}$ in. dowel, tapered and fitted with the usual rigging bands, spider and mast head lamp bracket. This is of the old fashioned type, usual at the time of this ship.

When the prototype came out, it was customary to carry a small mainsail and jib, both furled, but as they were never required, they were eventually removed. The rigging plan, in the writer's possession, shows both sails set.

The two life-boats are small by present-day standards, and are 5 in. long, $1\frac{1}{2}$ in. beam and $1\frac{1}{8}$ in.

sheer board. These must be made from fine rigging cord in one continuous length on either side.

The rudder, with its operating mechanism, has been devised to make use of the ventilator, situated at the extreme end of the after saloon deck (see Fig. 6 in March issue). In the prototype, the warping capstan with its two horizontal sheaves and the rudder crosshead, took up most of the room below the small aft deck, and it is not easy to adhere to this in the model and provide gear for turning the rudder. The rudder itself is cut out of $\frac{1}{16}$ in. sheet



FUNNEL RAKE
Fig. 21

brass with eyes for the 3/32 in. pintles secured by rivets and soldered in the position shown. The rudder stock is made from $\frac{1}{4}$ in. diameter brass rod,

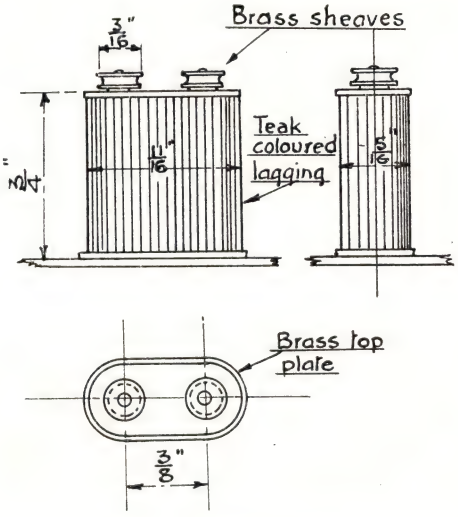


Fig. 22. Warping winch at stern

split at one end, and shaped to the drawing, then riveted to the rudder. The round part passes through a $\frac{1}{4}$ in. bore copper or brass tube, soldered to a plate which is screwed to the inside of the hull. This tube just projects through the hull. The three lugs, which carry the rudder, are filed out of solid brass, with 3/32 in. holes drilled as shown. These lugs are then fixed by riveting and soldering to a narrow strip of $\frac{1}{16}$ in. gauge brass, 7/32 in. broad, screwed to the stern.

In assembling the rudder on its pintles, the tube already mentioned, must be exactly central with these pins and all in line. The rudder stock of $\frac{1}{4}$ in. diameter carries a small worm wheel, about $\frac{1}{2}$ in. diameter at the top end, and gearing with this is a worm carried on a horizontal shaft, with suitable bearings screwed to the plate, which carries the tube for the stock. This worm shaft is carried along and a bevel gear drive fitted at the forward end with the vertical gear wheel shaft carried up to come central with the after ventilator already mentioned. These drives can be obtained from standard sizes, advertised in the columns of the *Model Engineer*. Within limits, the size is not very important. The thrust of the worm can be taken by careful fitting of the bearings and shaft. There should be no sloppiness or shake, and, the whole arrangement is quite simple to make up and fit. The pedestal, carrying the two warping sheaves (Fig. 22) was of a type not seen nowadays, and it is formed out of brass with a lagging of cedar varnished to the proper teak colour.

To be continued

The Shipmodeller's Scrapbook (*Continued from page 73*)

side to lead the ropes from the drum and back to the tiller. The first mechanism to be introduced consisted of a bevel gear and pinion enclosed in a casing mounted on a pillar and which carried the wheel spindle. This appeared in various forms but the gear developed ultimately into the type shown in our photograph.

The gratings on each side of the casing suggest the days when sailing ships carried passengers, this being a favourite seat when weather conditions were suitable. In some of the later sailing ships an open-fronted house, with its roof curving upward from the taffrail was built over the wheel to provide shelter for the helmsman, and to prevent him seeing the following seas when the ship was running before the wind in heavy weather.

When the midships bridge deck was introduced the wheel was moved to this position as being safer and because it gave the helmsman a better view forward. Also he could still watch the leach of the fore royal or upper top-gallant sail if the vessel was close to the wind. Usually the midship wheels were carried on the bridge deck itself, but in the example in our illustration, which was taken on the four-mast barque *L'Avenir*, a raised platform was provided to accommodate the wheels. Readers will remember that this ship had a combined poop and bridge deck, and that she had a number of erections on this deck, making it necessary to raise the wheels. *Viking* also had the midship wheels carried on a raised platform but *Herzogin Cecile*, a similar ship, had the wheels on the deck itself as this was comparatively clear of obstruction. The midship position involved the provision of steering chains and their casings leading aft to the rudder. These are shown in our photograph, which also shows the large sheave and its casing for leading the chain from the vertical to the horizontal direction. The vertical casing is tapered to allow for the chain traversing the drum as it is rotated. The wheels are carried on a shaft, a pinion on which drives a gear which drives a wheel on the drum shaft, thus giving the considerable leverage required for handling a large ship. It will be noted that the right- and left-hand screw gear is not applicable when the wheel is situated amidships.

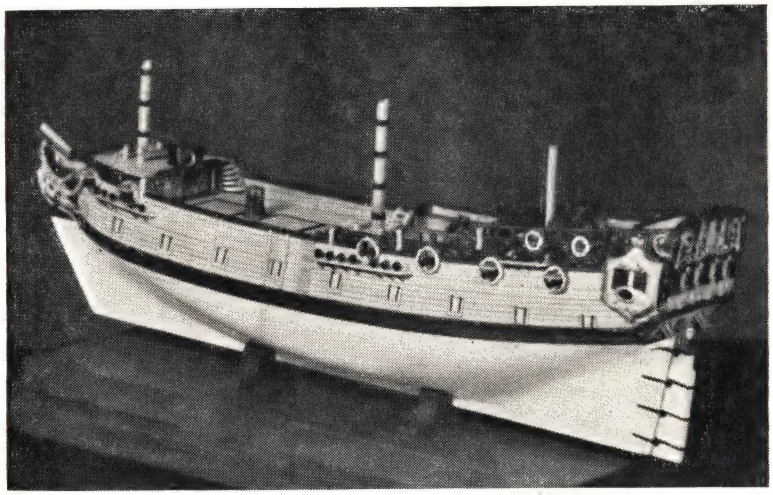
As a security measure the wheels aft were often retained and our third illustration shows the after wheels as fitted in *L'Avenir*. Here again two wheels are provided, the extended shaft for the forward one being supported by an additional bearing which may be seen just aft of the wheel. Gratings about 12-18 in. high above the deck are usually provided for the helmsman to stand on.

OUR READERS' MODELS No. 10

A FIFTH RATE SHIP OF 1684

By F. A. NORMAN

OUR model this month represents a type which is often neglected by the ship modeller. Most people think a ship is not complete unless it is rigged, which indeed is quite true, but there is something very satisfying in a hull model with the masts and bowsprit merely suggested. In the case of a ship of the Restoration period the principal interest is in the easy flowing lines and the elaborate decoration of the hull. The deck fittings, with the belfry and ornamented bulkheads and their curved stairs, afford great scope for the modeller, and the stern decoration, the quarter galleries, the elaborate figurehead and head rails, and the wreathed gun ports complete a very beautiful hull which is well worth modelling for its own sake.



An interesting ship model. Note the effect of planking obtained by the special method of construction described in the text

Photograph by Mr. Mortimer

The example illustrated was built by Mr. F. A. Norman, of Smethwick, Staffs, and is a very interesting example of its type. The hull is solid up to the lower wales and from that level it is made of $\frac{1}{16}$ in. layers bent to suit the sheer of the ship. The idea was to indicate the planking and to help this effect the glue was stained a darker colour. When the upper body was stained and varnished the effect was minimised but it is still sufficiently pronounced. Any tendency for the layers to straighten out is lessened by the hole cut out of the waist under the gratings, by the holes for the hatches, and by the gun ports. These were, of course, cut after the layers were glued together. The layers are drilled and pinned.

The lines were taken from a draught in the National Maritime Museum which was made by William Keltridge, in 1684. The fine under-water lines will be noticed. The decorations were from Van de Velde's prints and although they were somewhat simplified owing to the small scale (12 in. to 1 ft.) the general idea is followed very closely. The decks are properly laid and a house for the whipstaff with the whipstaff inside is included. The figurehead is a crowned lion with a large head, which was standard in the smaller ships of that period.

FOR THE BOOKSHELF

THE COMPLEAT MODELLIST

The second issue of this, the journal of the Association of Ship Model Societies, comes up fully to the expectations aroused by number one. In addition to the usual news items relating to the association there is an interesting report of a visit to the *Cutty Sark* when she was in dry dock, and an article on making miniature waterline models by John L. Bowen, whose 100 ft. to 1 in. model liners have won awards at various " M.E." Exhibitions. There is also a very valuable article on the early ironclads by Dr. Robinson who has made this period and type of ship his particular speciality. His series of miniature models of these vessels is well known.

A table of dimensions of the 16-gun brig *Snake*, a report of the annual general meeting, held in February, a few questions and answers, announcements, and a list of books for sale by members conclude a very useful and interesting issue.

Sponson Type Hull Lay-out

by R. H. WARRING

THE sponson-type speedboat hull illustrated is based on current Continental practice. The sponsons are, absolutely, appendages to the main hull, providing a virtual beam roughly one-third of the overall length. The beam of the hull proper is reduced to about one-fifth of the length.

Leading dimensions are designated by code letters and referred to in tabular form for different sizes of hull, suitable for 10 c.c. motors down. This, it was felt, was a more convenient method than detailing a 10 c.c. hull and leaving designers to factor all the dimensions for any other size of motor.

In side elevation, the datum line is the bottom line of the main hull. The load water line is parallel with this and somewhat lower than the vertical dimension "G," depending on the overall weight of the finished model. The centre of gravity position to give this balance is indicated, although this position will depend to a certain extent on the weight of the hull, the power unit and the sterntube assembly, etc.

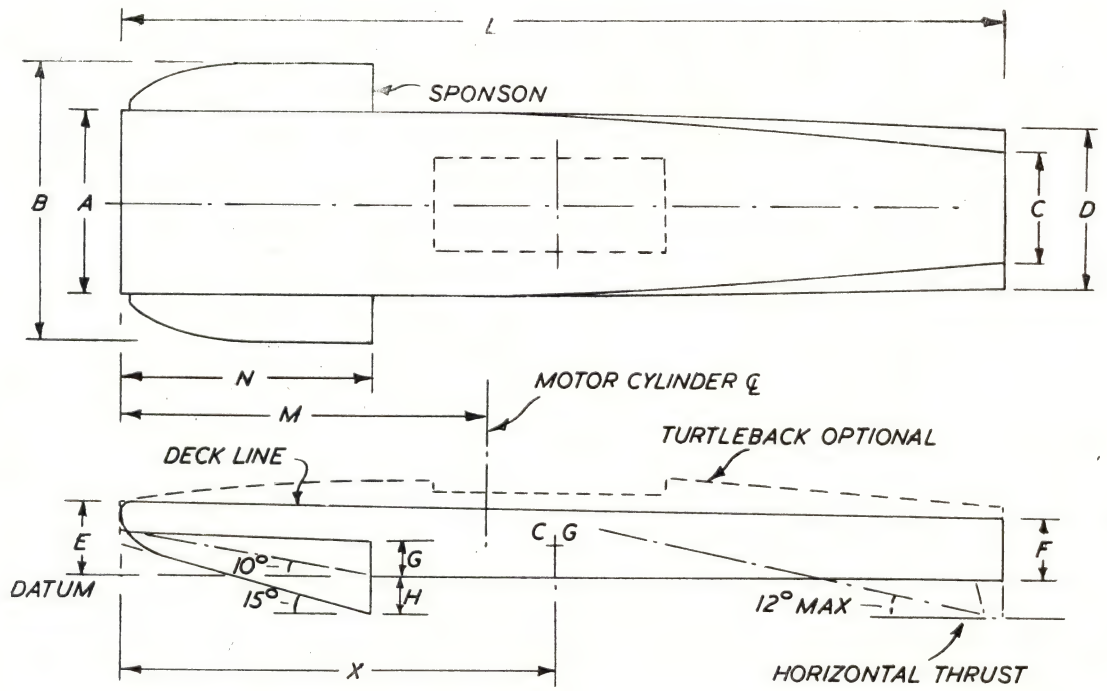
The forebody of the main hull is raked upwards at 10 deg. to the datum (load water line). The bottom line of the sponsons is inclined at 15 deg. to the datum. This, with the step located quite well forward, should give adequate planing stability with minimum drag.

DIMENSIONAL SPECIFICATIONS
(all dimensions in inches)

Power unit	L	A	B	C	D	E	F	G	H	M	N	X
10 c.c.	31	6¼	9½	4	5½	2⅜	2⅛	2	1⅛	13	8	16
5 c.c.	27	5½	8¼	3½	4¾	2⅛	2	1¾	1	11¼	7	14
2.5 c.c.	22½	4½	7	3	4	1¾	1½	1½	⅞	9½	6	11½
1 c.c.	18	3¾	5½	2⅜	3¼	1⅜	1¼	1¼	–	7½	4¾	9½

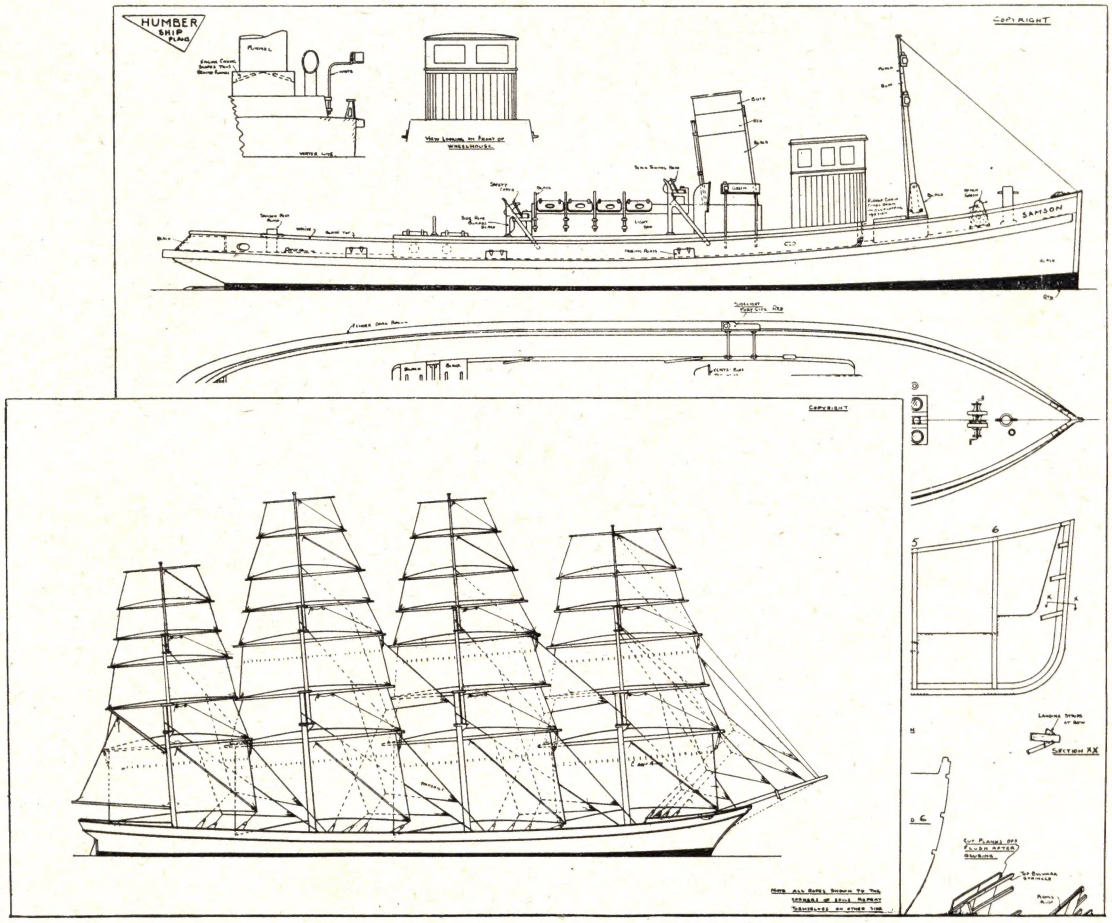
The forebody hull and sponson bottom lines are shown straight on the drawing, but these can be curved, if desired, with little or no effect on performance. The deck line of the main hull, incidentally, tapers off slightly towards the stern—the "F" dimension being less than "E," but not very

Continued on next page



In our "Trade Topics" in the April issue we referred to the series of ships' plans which Mr. John E. Skinley, of 132, High Street, Southend-on-Sea, Essex, has made available for model makers. This month we have reproduced two of them to give our readers some idea of their quality. The drawing of the sail plan of the four-mast ship, *Falls of Earn*, is one of a series which gives the lines, hull details and rigging details of this ship. The tug is of the diesel-engined type as used for river traffic. Profile and deck plans are given, and particulars showing a proposed method of construction for the hull.

The other drawings of the series are on a par with these and should prove of great assistance to the model maker.



Sponson Type Hull Lay-out *(Continued from previous page)*

much so. The hull is also tapered in planform aft, but again only slightly.

The turtleback or decking is purely optional. A convex deck is to be preferred for a variety of reasons, but the overall height should be kept as low as possible. Suitable spray strips or a coaming should be added around the cut-out to protect the motor.

With this type of hull a parallel thrust line is recommended, although not absolutely essential. For a number of reasons, however, it would appear that the maximum thrust angle is about 12 deg.

Constructionally, the main hull presents little problem owing to its straight lines. The sponsons may be a little more difficult, one of the main problems here being a secure and rigid assembly with the main hull. In one or two examples we have seen these sponsons faced with a duralumin plate on the inner side and this plate bolted on to the side of the main hull : not exactly tidy, but quite effective. Another example, which appeared satisfactory, had solid balsa sponsons dowelled through the main hull.

News from the Clubs

MODEL POWER BOAT ASSOCIATION

Fixtures for June and early July are as follows :—

June 3rd : Enfield and District M.E. Society Regatta at Albany Park Road, Enfield.

June 16th and 17th : M.P.B.A. Special Festival of Britain Regatta at Victoria Park, Hackney E. The prototype boats will compete on Saturday the 16th, and Sunday the 17th, will be entirely devoted to racing between the various classes of hydroplanes. Some record breaking speeds are expected.

June 24th : Blackheath M.P.B. Club. Regatta at Princess of Wales Pond, Blackheath, S.E.3.

July 1st : Orpington M.E. Society. Regatta at Victoria Park, Hackney, E.

July 1st : Derby M.R.C. Regatta at Allestree Park, Derby.

July 8th. : Wicksteed M.Y. & P.B. Club. Regatta at Wicksteed Park, Kettering.

INTERNATIONAL RADIO CONTROLLED MODELS SOCIETY

The following meetings of the above society will be held during June :—

London Group. Sunday, June 10th, at 2 p.m., at the Horseshoe Hotel, Tottenham Court Road, London. Final discussion of arrangements for " M.E." Exhibition. There will be no meeting in July, due to holidays, and none in August, due to the " M.E." Exhibition.

Birmingham Group. Saturday, June 2nd, at 2.30 p.m., in the History Class Room, University of Birmingham, Edmund Street, Birmingham.

Manchester Group. Saturday, June 16th, at 2.30 p.m., at the Milton Hall, Deansgate, Manchester.

Hon. Secretary : T. F. SUTTON, The Lodge, Manchester Grammar School, Manchester, 13.

Y.M. 6M. O.A. AND SOUTH LONDON M.Y.C.

The fixtures for June are as follows :—

June 3rd. : 11 a.m. Serpentine Cup (Open).
June 10th : 2 p.m. Handicap Race.
June 17th. : 2 p.m. Surbiton Shield IV.
June 24th. : 2 p.m. Handicap Race.
July 1st. : 11.30 a.m. Jubilee Cup (Open).
Sailing water : The Rick Pond, Hampton Court.

Hon. Racing Sec. : MAJOR G. B. LEE, 72, Westfield Road, Surbiton, Surrey.

GREENWICH AND DISTRICT SHIP MODEL SOCIETY

The above society is holding an exhibition of ship models on Saturday, June 9th, at Charlton House, Charlton Village. For full particulars apply to the Hon. Sec. : R. A. Moss, 20, Belmont Avenue, Welling, Kent.

NORTH WEST LONDON SHIP MODEL SOCIETY

On June 12th, Mr. S. E. Wurr will give a talk on " Cardboard Ship Modelling " illustrated with specimens of his work. On Saturday, June 17th, a visit by waterbus to the National Maritime Museum has been arranged. For further particulars apply to the Hon. Sec. : W. O. B. MAJOR, 81, Paxford Road, N. Wembley, Middx. Phone : Wembley 3348.

THE THAMES SHIP LOVERS AND SHIP MODELLERS SOCIETY

The last lecture of the season, which was held in East Holborn Public Library owing to the *Discovery* being closed in preparation for summer events, was quite a change from the usual type of lecture. Mr. Frank Taylor gave a very interesting lecture on the " Thames—from its source to Teddington." The lecture was illustrated by a series of beautiful slides, and the background of appropriate music added to the pleasure of a very enjoyable evening.

The outing for the month takes the form of a day cruise to Margate by the M.V. *Royal Sovereign*, on Sunday, June 24th. The ship arrives at Margate at 1.45 p.m. and stays two hours, during which the party will be welcomed by the Thanet Shiplover's Society.

On Sunday, July 29th, a rally of sailing ship models is to be held at Hove Lagoon by arrangement with Hove and Brighton M.Y.C., when sailing models of all types other than purely racing craft will be seen. Further particulars from the Hon. Sec. : H. V. EVANS, 134, Sunningfields Road, Hendon, N.W.4.

TYNEMOUTH M.Y. CLUB

On Saturday, June 10th, prototype models will compete for the Porter medal, and on the 24th will be held the Paris Competition for the Pyle Cup. The sailing water is in Tynemouth Park, starting times 10.30 a.m. Full particulars from the Hon. Sec. : S. H. WALKER, 18, King Edward Road, Tynemouth.

THE BIRMINGHAM M.Y. CLUB

The Cole Cup for the Marbleheads was sailed for on a recent Saturday, *Kanchi* (G. Smith) being the winner with 16 points. The runners up were, *Wendy* (D. Lippett) with 14 points and *Maroda* (W. Smith) with 11 points. The wind was squally and second and third suits were necessary.

The club's first 6-metre Trophy race for the Eastern Challenge Cup was sailed for on Saturday, April 21st. The weather was sunny, but squally, and the sailing conditions very tricky and hazardous. The winner was *Janet II* (E. W. Hague) with 17 points out of a possible 20. Second *Dorrie* (S. Langford) with 13 points and third *Pysche* (W. Smith) with 10 points.

The National Championship for 10-raters will be sailed on Witton Lakes from July 30th to August 3rd, and the Birmingham Parks Committee is laying concrete paths round the banks of the lake in anticipation of the event.

BRISTOL SHIP MODEL CLUB

This club was formed as the outcome of a talk given to the Bristol Shiplovers Society, and the connection with the parent body has been kept very much alive ever since. Recently the model club gave the shiplovers an exhibition of their models. These included a number of miniatures, some of the larger ones made by Mr. F. Shipsides having been seen at the " M.E." Exhibition in recent years. Mr. A. S. Miller, whose serial is at present running in our pages, showed some of his working model steamers, and Capt. E. J. Watkins, a Bristol Channel Pilot, showed his sailing model of the brig *Runnymede*, which was much admired. The local papers published some excellent photographs of the event.

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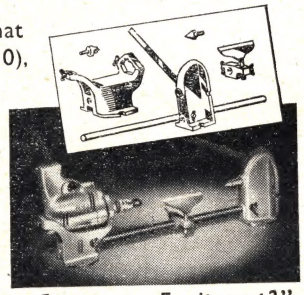

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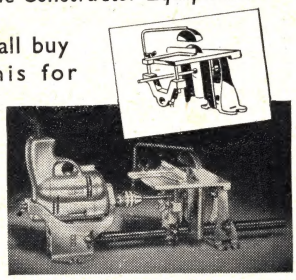

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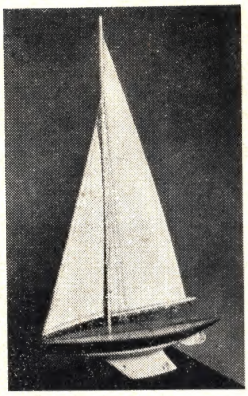

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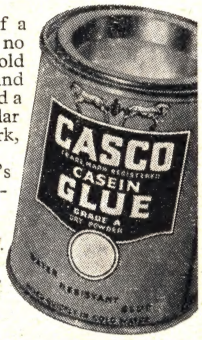

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